Human-In-The-Loop Control of a Bipedal Robot with Variable Levels of Autonomy

Completed Technology Project (2011 - 2015)

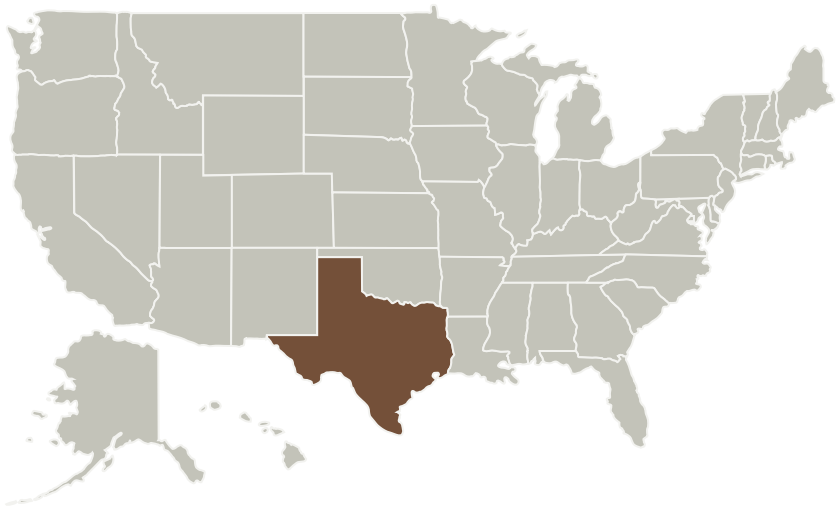
Project Introduction

Bipedal robots have a growing presence in space exploration and industrial applications because they can more easily and safely perform complex tasks in environments designed for human users than their traditional mobile wheeled counterparts. However, the increased number of degrees of actuation and sensing make bipedal robots unwieldy for human operators to directly teleoperate. The objective of this study is to design, implement, and test interfaces that will allow human operators to efficiently generate movement patterns for, gather feedback from, and moderate such robots at levels ranging from individual joints to multiple robots.

Anticipated Benefits

This study aims to design, implement, and test interfaces that will allow human operators to efficiently generate movement patterns for, gather feedback from, and moderate bipedal robots at levels ranging from individual joints to multiple robots.

Primary U.S. Work Locations and Key Partners



Project Image Human-In-The-Loop Control of a Bipedal Robot with Variable Levels of Autonomy

Table of Contents

Project Introduction	1
Anticipated Benefits	1
Primary U.S. Work Locations and Key Partners	1
Organizational Responsibility	1
Images	2
Project Website:	2
Project Management	2
Technology Maturity (TRL)	2
Technology Areas	2

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Responsible Program:

Space Technology Research Grants

Human-In-The-Loop Control of a Bipedal Robot with Variable Levels of Autonomy

Completed Technology Project (2011 - 2015)

Organizations Performing Work	Role	Type	Location
Rice University	Supporting Organization	Academia	Houston, Texas

Primary U.S. Work Locations
Texas

Images

4265-1363185786259.jpg
Project Image Human-In-The-Loop Control of a Bipedal Robot with Variable Levels of Autonomy
(https://techport.nasa.gov/image/1775)

Project Website:

https://www.nasa.gov/directorates/spacetech/home/index.html

Project Management

Program Director:
Claudia M Meyer

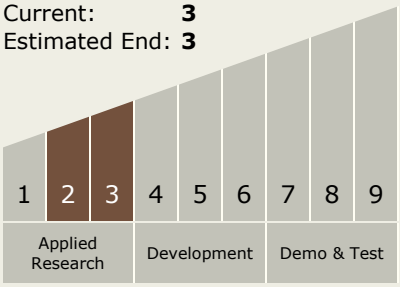
Program Manager:
Hung D Nguyen

Principal Investigator:
Marcia O'malley

Co-Investigator:
Dane T Powell

Technology Maturity (TRL)

Start: **2**
Current: **3**
Estimated End: **3**



Technology Areas

Primary:

- TX04 Robotic Systems
  - TX04.4 Human-Robot Interaction
    - TX04.4.1 Multi-Modal and Proximate Interaction